

## Standard Operating Procedure:

**(All users of the MS facility will need to confirm that they have read and agree to the mass spectrometry facility risk assessment and the Standard Operating Procedures before they are allowed to use any instrument within the facility)**

### Operation of mass spectrometry instruments in lab B602, during Covid-19 lockdown easing period.

#### **Scope & Applicability**

|                       |  |
|-----------------------|--|
| <b>Scope:</b>         | This SOP is specific to lab B602 and provides instructions to MS facility staff on management of instrument operation by trained users, during the Covid-19 lockdown easing period.<br><br>This SOP will include detailed instructions on: <ul style="list-style-type: none"><li>- How to arrange use of instrumentation by trained users.</li><li>- Disinfection procedures between trained users.</li><li>- Instrument maintenance and troubleshooting</li></ul> |
| <b>Applicability:</b> | This SOP is for use by MS facility staff only, but also gives instructions relevant to trained users.  |

#### **Methodology & Procedures**

Due to the dimensions of lab **B602**, the maximum occupancy at any one time (compliant with the 2m social distancing rules) is **1 person**. To maintain 2m spacing between individuals, floor markings may be present in each lab to act as a guideline, and the booking system for instrument use will be modified. Users will also need to observe social distancing rule on the 6<sup>th</sup> floor while going through the lobby area (B601) and when accessing the lab B604 for fume hood usage, which are shared with researchers who work in the 6<sup>th</sup> floor research labs.

In addition, to reduce the risk of exposure between occupants, ample time must be given between trained users & MS facility staff. Enough time must also be allowed for surface disinfection after instrument operation, and the surface disinfection procedure must also be thorough. This will be covered by the modified booking systems.

Facilities for hand washing/sanitising will also be provided for each lab in the form of hand sanitiser dispensers (availability pending).

The considerations listed above will also have implications for troubleshooting instrument issues.

To adhere to the considerations listed above, procedures have been written up for the following:

- Arranging instrument operation with trained users
- Disinfection
- Instrument maintenance

#### **Arranging instrument operation with trained users**

Instruments specific to lab B602

- Perkin Elmer 5300DV ICP-OES
- Agilent 7900 ICP-MS
- Analytix Microwave Digestion system
- Agilent 1200 HPLC

1. Trained user should discuss the intention for instrument use with a [member of MS facility staff](#).

Discussion should include:

- i. Reason for use.
- ii. Type of and number of samples (including all types of standards).
- iii. Instrument conditions required (instrument operation mode, HPLC mobile phase/column/mobile phase cycle/etc.).

- iv. Reminder of the [Coronavirus guidance](#) & [Health and safety guidance on COVID-19](#), in particular Personal Hygiene & Hand Washing.
  - v. Reminder of PPE usage upon lab entry (including disposable gloves, provided in B602).
  - vi. Outline of social distancing & disinfection measures put in place.
  - vii. Guidance on how to inform MS staff of instrument issues.
  - viii. Referral to risk assessment for MS facility.
2. If Approval given, move on to step 3. (If approval declined, further discussion may be required).
  3. User makes a booking for the required instrument using the appropriate [online booking form](#), to be approved by MS staff. The booking time should cover instrument set-up, the total predicted run-time, and finishing time (removal of samples, dispose of waste etc.).
  4. MS facility staff should consider the following before approving the new booking:
    - i. Is there conflict with an approved booking for another instrument in the same lab?
      - If so, decline the new booking, and rearrange a new time with the user.
    - ii. Is there conflict with an approval-pending booking for another instrument in the same lab?
      - If so, discuss priority with relevant users. If priority perceived to be equal, then decision may need to revert to a first-come-first-serve system.
    - iii. Is there conflict with disinfection procedures for instruments in other labs?
      - If so, discuss modifying the booking time with the user.
  5. When MS staff approve a new booking (the user will automatically be informed upon approval):
    - i. Timeslots 2hrs before and after the booking should be blocked by MS staff (to allow for the disinfection procedure).
    - ii. Corresponding timeslots for **other** instruments in the **same lab** must also be blocked by MS staff (to prevent bookings on those instruments, and to allow for the disinfection procedure).
  6. On the day of the booking, MS staff should:
    - i. Follow the Disinfection Procedure at least 1 hour before and 1 hour after operation by the trained user.
    - ii. Check that the instrument is in good running order during these times.

### **Disinfection Procedure**

High-frequency touch point/area around the instrument should be disinfected, in order to reduce the risk of cross-contamination between users.

1. Instruments & areas around the instrument should be disinfected at the following times:
  - i. 1 hour before use.
  - ii. 1 hour after use.
  - iii. At the end of the working day.
2. Before entry to the lab, MS staff must:
  - i. Make sure that the lab is vacant (by referring to the online booking form, and physical check).
  - ii. Disinfect the door handle & key card points with 70% IPA.
  - iii. Wash hands with hand sanitiser and then enter the lab.
  - iv. Dispose of the tissue upon lab entry.
3. Upon lab entry MS staff must wear PPE and comply with social distancing measures.
4. High-frequency touch point areas around the relevant instrument should be disinfected, including:
  - i. Benchtops
  - ii. Chairs (plastic backs & arms).
  - iii. PC: keyboard; monitor; mouse; desk; stationery left in the area.
  - iv. Instrument: buttons; autosampler racks; peristaltic pump and tubing; washing solution for auto-sampler probe and sample uptake tubing; HPLC mobile phase bottles & lines; column covers; waste containers; exhaust extractor for ICP instruments.
5. Disinfection methods should be different for electronics vs surfaces:
  - i. Electronics (instrument PC & instrument itself):
    - i. Spray a tissue with 70% IPA.
    - ii. Thoroughly wipe down one component and dispose of the tissue.

- iii. Use a fresh tissue between components to prevent cross-contamination (e.g monitor/keyboard/mouse, mobile phase bottles & lines/autosampler drawers/covers).
- ii. Surfaces (benchtops/desks/chairs, not close to electrical equipment):
  - i. Spray a tissue with 70% IPA (or Virkon or Screen Disinfectant cleaner for Benchtops).
  - ii. Wipe the surface down and dispose of the tissue.
  - iii. Use a new tissue between surfaces.
- 6. MS staff should then check that the instrument is operating correctly.
- 7. When leaving the lab MS staff should follow steps 2.ii. → 2.iv.

### **Instrument maintenance**

Operating issues may arise at any time during instrument use, either delaying operation or leading to system crash. The issue will need to be resolved while observing social distancing measures. If the operating issue occurs while the trained user is occupying the lab, the following steps may be advisable:

1. If possible, the user should pause or stop the run.
2. User should disinfect the area, leave the lab and inform MS staff of the issue via email or telephone number listed on the front of the lab door.

Once aware of the issue MS staff should then:

3. Wait ~1hr before going into the lab if it is safe to do so.
4. Adjust the online booking form to reflect the delay and inform the next user of the delay.
5. Disinfect the area before fixing the issue (following the Disinfect Procedure).
6. Resolve the issue if possible. If not possible, inform the user, arrange a new booking time, and inform the next user that there may not be a delay.
7. Restart/resume the run & inform the current and following user.

### **Health and Safety**

#### **General Health and Safety:**

The following PPE is required at all times in any MS facility lab:

- Lab coat (red lab coats available for non-MS staff)
- Goggles
- Gloves

#### **Coronavirus Guidance:**

In addition to the above PPE, individuals may also wish to wear face coverings to reduce risk of transmission if they prefer.

Additional health and safety measures should also be consulted and followed. These can be referred to via:

- [Coronavirus guidance](#)
- [Health and safety guidance on COVID-19](#)

### **Equipment & Supplies**

Generic health and safety equipment & supplies:

- Hand Sanitiser
- Virkon or Screen Disinfectant cleaner (Recommended by the university for wiping down benchtops [Cleaning Procedures](#))
- 70% IPA (Refers to the IPA formulation recommended by the university for wiping down surfaces ([Coronavirus FAQ](#), [Cleaning Procedures](#)))
- Tissues

Personal Protective Equipment:

- Lab Coat (red lab coats available for non-MS staff)
- Goggles
- Gloves

Instruments specific to lab B602:

- Perkin Elmer 5300DV ICP-OES
- Agilent 7900 ICP-MS

- Analytix MicroWave Digestion system

- Agilent 1200 HPLC

### **Definitions**

|                                      |  |
|--------------------------------------|--|
| <b>Trained User/User:</b>            | Used interchangeably & refer to the individual (not part of the MS facility staff), who is trained on the operation of the instrument in question.             |
| <b>MS:</b>                           | Abbreviation of "Mass Spectrometry"  |
| <b>PPE:</b>                          | Personal Protective Equipment  |
| <b>Virkon or Screen Disinfectant</b> | Refers to the recommended formulations for wiping down benchtops ( <a href="#">Cleaning Procedures</a> )   |
| <b>70% IPA:</b>                      | Refers to the IPA formulation recommended by the university for wiping down surfaces ( <a href="#">Coronavirus FAQ</a> , <a href="#">Cleaning Procedures</a> ) |